WHAT IS CLAIMED IS:

1. A face image photographing apparatus comprising photographing means for photographing at least a face image of a to-be-photographed person,

5 output means for outputting a face image photographed by said photographing means, and guidance display means for displaying a photographing state for guiding the to-be-photographed person when the photographing operation is effected by said photographing means,

10 wherein said guidance display means displays at least a position in which the to-be-photographed person sets an observing point on said photographing means, displays a message instructing the person to wait for photographing, an end of photographing, and a direction

15 in which the person should moves after the end of photographing.

2. A face image photographing method comprising the steps of:

photographing at least a face image of a to-be-

20 photographed person;

measuring the size of a face of the to-be-photographed person based on the photographed face image; and

obtaining a face image with a constant size by

25 subjecting the photographed face image to a zooming process according to the measured value of the size of the face measured.

3. The face image photographing method according to claim 2, wherein said step of obtaining the face image with a constant size comprises the steps of:

deriving a ratio of the measured value of the face size measured to a target face size value which is an adequate face size and setting the derived ratio as a zoom ratio; and

obtaining a face image with a constant size by subjecting the photographed face image to a zooming process according to the zoom ratio.

4. A face image photographing method comprising the steps of:

photographing at least a face image of a to-be-photographed person;

measuring the size of a face of the to-be-photographed person based on the photographed face image;

determining whether the measured value of the face size measured is within a specified range;

obtaining a face image with a constant size by subjecting the photographed face image to a zooming process according to the measured value of the measured face size when it is determined in said determining step that the measured value of the face size is within the specified range; and

effecting a retry control process for causing a process including said face image photographing

step, said face size measuring step and said step of determining whether the measured value of the face size measured is within the specified range to be effected again when it is determined in said determining step

5 that the measured value of the face size measured is outside the specified range.

   5. The face image photographing method according to claims 2, 3 and 4, wherein said step of measuring the size of a face of the to-be-photographed person is

10 effected by detecting positions of at least both pupils in the face of the to-be-photographed person based on the photographed face image and measuring the face size according to the relation of the detected positions of the pupils.

15 6. The face image photographing method according to claims 2, 3 and 4, wherein said step of measuring the size of a face of the to-be-photographed person is effected by detecting positions of at least both pupils and mouth in the face of the to-be-photographed person

20 based on the photographed face image and measuring the face size according to the relation of the detected positions of the pupils and mouth.

   7. A face image photographing apparatus comprising:

25 photographing means for photographing at least a face image of a to-be-photographed person;

   measuring means for measuring the size of a face

of the to-be-photographed person based on the face

image photographed by said photographing means; and

zoom processing means for obtaining a face image

with a constant size by subjecting the photographed

5   face image to a zooming process according to the

measured value of the face size measured by said

measuring means.

8.   The face image photographing apparatus

according to claim 7, wherein said zoom processing

10   means includes:

zoom ratio setting means for deriving a ratio of

the measured value of the face size to a target face

size value which is an adequate face size and setting

the derived ratio as a zoom ratio; and

15   zoom processing means for obtaining a face image

with a constant size by subjecting the face image

photographed by said photographing means to a zooming

process according to the zoom ratio set by said zoom

ratio setting means.

20   9.   A face image photographing apparatus

comprising:

photographing means for photographing at least

a face image of a to-be-photographed person;

measuring means for measuring the size of a face

25   of the to-be-photographed person based on the face

image photographed by said photographing means;

determining means for determining whether

a measured value of the face size measured by said
measuring means is within a specified range;

zoom processing means for obtaining a face image
with a constant size by subjecting the face image
photographed by said photographing means to a zooming
process according to the measured value of the face
size measured by said measuring means when said
determining means determines that the measured value of
the face size lies within the specified range; and

retry control means for causing the face image
photographing process by said photographing means, the
face size measuring process by said measuring means and
the process by said determining means for determining
whether the measured value of the face size is within
the specified range to be effected again when said
determining means determines that the measured value of
the face size is outside the specified range.

10. The face image photographing apparatus
according to claims 7, 8 and 9, wherein said measuring
means detects positions of at least both pupils in the
face of the to-be-photographed person based on the face
image photographed by said photographing means and
measuring the face size according to the relation of
the detected positions of the pupils.

11. The face image photographing apparatus
according to claims 7, 8 and 9, wherein said measuring
means detects positions of at least both pupils and

mouth in the face of the to-be-photographed person

based on the face image photographed by said

photographing means and measuring the face size

according to the relation of the detected positions of

5   the pupils and mouth.

12.   A face image photographing method comprising

the steps of:

photographing at least a face image of a to-be-

photographed person;

10   determining whether the to-be-photographed person

is set in a photographing possible state based on

the photographed face image; and

selecting the photographed face image as

a photographing image when it is determined in said

15   photographing possible state determining step that the

to-be-photographed person is set in the photographing

possible state.

13.   A face image photographing method comprising

the steps of:

20   photographing at least a face image of a to-be-

photographed person by plural times and fetching the

photographed face images as a plurality of images;

determining whether the to-be-photographed person

is set in a photographing possible state by monitoring

25   the states of at least eyes and mouth of the face of

the to-be-photographed person based on the plurality of

fetched images; and

selecting one of the plurality of fetched images which is optimum for outputting as a photographing image when it is determined in said photographing possible state determining step that the to-be-

5   photographed person is set in the photographing possible state.

14. A face image photographing method comprising the steps of:

photographing at least a face image of a to-be-

10   photographed person by use of photographing means;

detecting that the to-be-photographed person lies within a photographing range of the photographing means based on an output of the photographing means;

guiding the to-be-photographed person to

15   make preparation for photographing when the to-be-photographed person is detected in the photographing range;

determining whether the to-be-photographed person is set in a photographing possible state based on the

20   face image photographed by the photographing means after said guiding step; and

selecting the face image photographed by the photographing means as a photographing image when it is determined in said photographing possible state

25   determining step that the to-be-photographed person is set in the photographing possible state.

15. The face image photographing method according

to claims 13 and 14, wherein said step of determining whether the to-be-photographed person includes the steps of:

effecting a retry control process for causing said

5   face image photographing step and said photographing possible state determining step to be effected again when it is not determined in said photographing possible state determining step that the to-be-photographed person is set in the photographing

10   possible state.

16. A face image photographing apparatus comprising:

photographing means for photographing at least a face image of a to-be-photographed person;

15   determining means for determining whether the to-be-photographed person is set in a photographing possible state based on the photographed face image; and

selecting means for selecting the face image

20   photographed by said photographing means as a photographing image when it is determined by said determining means that the to-be-photographed person is set in the photographing possible state.

17. A face image photographing apparatus

25   comprising:

photographing means for photographing at least a face image of a to-be-photographed person by plural

times and fetching the photographed face images as a plurality of images;

determining means for determining whether the to-be-photographed person is set in a photographing possible state by monitoring the states of at least eyes and mouth of the face of the to-be-photographed person based on the plurality of images fetched by said photographing means; and

selecting means for selecting one of the plurality of images fetched by said photographing means which is optimum for outputting as a photographing image when it is determined by said determining means that the to-be-photographed person is set in the photographing possible state.

18. A face image photographing apparatus comprising:

photographing means for photographing at least a face image of a to-be-photographed person;

to-be-photographed person detecting means for detecting that the to-be-photographed person lies within a photographing range of the photographing means based on an output of said photographing means;

photographing guiding means for guiding the to-be-photographed person to make preparation for photographing when the to-be-photographed person is detected in the photographing range by said to-be-photographed person detecting means;

determining means for determining whether the to-be-photographed person is set in a photographing possible state based on the face image photographed by said photographing means after the guiding process by

5   said photographing guiding means; and

selecting means for selecting the face image photographed by said photographing means as a photographing image when it is determined by said determining means that the to-be-photographed person is

10   set in the photographing possible state.

19. The face image photographing apparatus according to claims 16, 17 and 18, wherein said determining means includes:

retry control means for causing the face image

15   photographing process by said photographing means and the photographing possible state determining process by said determining means to be effected again when it is not determined by said determining means that the to-be-photographed person is set in the photographing

20   possible state.

20. A face image photographing method comprising the steps of:

photographing at least a face image of a to-be-photographed person;

25   detecting the position of pupils based on the photographed face image;

recognizing the state of the pupils based on the

detected pupil position to determine whether the pupils are normally opened; and

causing the face image photographing process, the pupil position detecting process and the determination process whether the pupils are normally opened to be effected again when it is determined in said determining step that at least one of the pupils is not normally opened.

21. A face image photographing apparatus comprising:

photographing means for photographing at least a face image of a to-be-photographed person;

detecting means for detecting the position of pupils based on the face image photographed by said photographing means;

determining means for recognizing the state of the pupils based on the pupil position detected by said detecting means to determine whether the pupils are normally opened; and

retry control means for causing the face image photographing process by said photographing means, the pupil position detecting process by said detecting means and the process by said determining means for determining whether the pupils are normally opened to be effected again when it is determined by said determining means that at least one of the pupils is not normally opened.

22. A face image photographing method comprising the steps of:

photographing at least a face image of a to-be-photographed person;

5   detecting the position of pupils based on the photographed face image;

recognizing the state of the pupils based on the detected pupil position to determine whether the pupils are normally opened;

10   outputting the photographed face image as a photographing image or as a printed image, or to an image storage medium, when it is determined in said determining step that the pupils are normally opened; and

15   causing the face image photographing process, the pupil position detecting process and the process for determining whether the pupil is normally opened to be effected again when it is determined in said determining step that at least one of the pupils is not 20   normally opened.

23. A face image photographing apparatus comprising:

photographing means for photographing at least a face image of a to-be-photographed person;

25   detecting means for detecting the position of pupils based on the face image photographed by said photographing means;

determining means for recognizing the state of
the pupils based on the pupil position detected by
said detecting means to determine whether the pupils
are normally opened;

5   image output means for outputting the face
image photographed by said photographing means as
a photographing image or as a printed image, when it is
determined by said determining means that the pupils
are normally opened; and

10   retry control means for causing the face image
photographing process by said photographing means,
the pupil position detecting process by said detecting
means and the process by said determining means
for determining whether the pupil is normally opened
15   to be effected again when it is determined by said
determining means that at least one of the pupils is
not normally opened.

24.   The face image photographing apparatus
according to claims 21, 23, wherein said detecting
20   means detects the face contour position based on the
face image photographed by said photographing means,
derives an approximate positional area of the pupils
which lies in a relative position with respect to the
detected face contour position based on the detected
25   face contour position and extracts positions of the
pupils based on the derived approximate positional area
of the pupils.

25. The face image photographing apparatus according to claims 21 and 23, wherein said determining means determines whether the number of pupil positions detected by said detecting means is larger than a preset specified value, compares shapes of peripheral portions of the detected pupil positions with preset pupil sample data if it is determined that the number of detected pupil positions is larger than the specified value, determines whether the degree of similarity of one of the detected pupil positions which has the highest degree of similarity is larger than a preset threshold value, determines that the pupils are normally opened if the highest degree of similarity is larger than the preset threshold value, and determines that at least one of the pupils is not normally opened in one of a case wherein the highest degree of similarity is not larger than the preset threshold value and a case wherein the number of detected pupil positions is detected to be not larger than the specified value.

26. The face image photographing apparatus according to claims 21 and 23, wherein said retry control means effects the retry process after waiting for a preset specified period of time when said determining means determines that at least one of the pupils is not normally opened.

27. A face image photographing apparatus

comprising:

photographing means for photographing at least
a face image of a to-be-photographed person;

detecting means for detecting the position of
pupils based on the face image photographed by said
photographing means;

determining means for recognizing the state of the
pupils based on the pupil position detected by said
detecting means to determine whether the pupils are
normally opened;

image storing means for storing the face image
photographed by said photographing means when it is
determined by said determining means that the pupils
are normally opened; and

retry control means for causing the face image
photographing process by said photographing means,
the pupil position detecting process by said detecting
means and the process by said determining means for
determining whether the pupils are normally opened to
be effected again when it is determined by said
determining means that at least one of the pupils is
not normally opened.

28. A face image photographing method comprising
the steps of:

photographing at least face images of a to-be-
photographed person and fetching the face images as
successive images of a plurality of frames;

storing the fetched successive images of the plurality of frames as a backup image;

printing and outputting an image of a preset frame in the stored successive images of the plurality of

5 frames;

selecting an image of a desired frame suitable for outputting of the face image from the stored successive images of the plurality of frames when the printed and output image is not adequate; and

10 printing and outputting the selected image.

29. A face image photographing method comprising the steps of:

photographing at least face images of a to-be-photographed person and fetching the face images as

15 successive images of a plurality of frames;

storing the fetched successive images of the plurality of frames as a backup image;

recognizing the state of pupils based on the image of a preset frame in the stored successive images of

20 the plurality of frames and determining whether the pupil state is suitable for printing/outputting of the face image;

printing and outputting the image of the preset frame when it is determined in said determining step

25 that the pupil state is suitable for printing/outputting of the face image;

causing said determining step to be effected again

by use of an image of a frame next to the image of the preset frame in the stored successive images of the plurality of frames when it is determined in said determining step that the pupil state is not suitable for printing/outputting of the face image;

selecting an image of a desired frame suitable for outputting of the face image from the stored successive images of the plurality of frames when the printed and output image is not adequate; and

printing and outputting the selected image.

30. A face image photographing apparatus comprising:

image fetching means for photographing at least face images of a to-be-photographed person and fetching the face images as successive images of a plurality of frames;

image storing means for storing the successive images of the plurality of frames fetched by said image fetching means as a backup image;

first printing/outputting means for printing and outputting an image of a preset frame in the successive images of the plurality of frames stored in said image storing means;

image selecting means for selecting an image of a desired frame suitable for outputting of the face image from the successive images of the plurality of frames stored in said image storing means when the image

printed and output by said first printing/outputting means is not adequate; and

second printing/outputting means for printing and outputting the image selected by said image selecting means.

31. A face image photographing apparatus comprising:

image fetching means for photographing at least face images of a to-be-photographed person and fetching the face images as successive images of a plurality of frames;

image storing means for storing the successive images of the plurality of frames fetched by said image fetching means as a backup image;

determining means for recognizing the state of pupils based on the image of a preset frame in the successive images of the plurality of frames stored in said image storing means and determining whether the pupil state is suitable for printing/outputting of the face image;

first printing/outputting means for printing and outputting the image of the preset frame when said determining means determines that the pupil state is suitable for printing/outputting of the face image;

retry control means for causing said determining means to effect the determining process again by use of an image of a frame next to the image of the preset

frame in the successive images of the plurality of frames stored in said image storing means when said determining means determines that the pupil state is not suitable for printing/outputting of the face image;

5   image selecting means for selecting an image of a desired frame suitable for outputting of the face image from the successive images of the plurality of frames stored in said image storing means when the image printed and output by said first

10   printing/outputting means is not adequate; and

second printing/outputting means for printing and outputting the image selected by said image selecting means.

32.   The face image photographing apparatus

15   according to claim 31, wherein said determining means detects a face contour position from the image of the preset frame in the successive images of the plurality of frames stored in said image storing means, derives an approximate positional area of pupils which lies

20   in a relative position with respect to the contour position based on the detected face contour position, extracts positions of both pupils based on the derived approximate positional area of the pupils, recognizes the pupil state based on the extracted positions of

25   both of the pupils, and determines whether the pupil state is suitable for outputting of the face image according to whether the pupils are normally opened.

33. The face image photographing apparatus
according to claim 32, wherein said first
printing/outputting means derives a central position
between both of the pupils based on the extracted
5   positions of the pupils, determines an image cut-out
area by deriving a relative position with respect to
the derived central position, cuts out an image in the
determined image cut-out area from the image of the
preset frame and printing and outputting the cut-out
10   image.

34. A face image photographing apparatus
comprising:
        image fetching means for photographing at least
face images of a to-be-photographed person and fetching
15   the face images as successive images of a plurality of
frames;
        image storing means for storing the successive
images of the plurality of frames fetched by said image
fetching means as a backup image;
20   first determining means for recognizing the state
of pupils based on the image of a preset frame in the
successive images of the plurality of frames stored in
said image storing means and determining whether the
pupil state is suitable for printing/outputting of the
25   face image;
        first printing/outputting means for printing
and outputting the image of the preset frame when

said first determining means determines that the
pupil state is suitable for printing/outputting of
the face image;

retry control means for causing said determining
5 means to effect the determining process again by use of
an image of a frame next to the image of the preset
frame in the successive images of the plurality of
frames stored in said image storing means when said
first determining means determines that the pupil state
10 is not suitable for printing/outputting of the face
image;

second determining means for counting the number
of retry processes by said retry control means and
determining whether the counted value reaches a preset
15 specified value;

error processing means for effecting an error
process when said second determining means determines
that the number of retry processes reaches the
specified value;

20 image selecting means for selecting an image of a
desired frame suitable for outputting of the face image
from the successive images of the plurality of frames
stored in said image storing means when the image
printed and output by said first printing/outputting
25 means is not adequate; and

second printing/outputting means for printing and
outputting the image selected by said image selecting

means.

35. A face image photographing method comprising the steps of:

photographing at least face images of a to-be-photographed person and fetching the face images as successive images of a plurality of frames;

storing the fetched successive images of the plurality of frames as a backup image;

storing and outputting an image of a preset frame in the stored successive images of the plurality of frames with respect to one of a storage device such as a filing device and other storage medium;

selecting an image of a desired frame suitable for outputting of the face image from the stored successive images of the plurality of frames when the output image is not adequate; and

outputting the selected image.

36. A face image photographing method comprising the steps of:

photographing at least face images of a to-be-photographed person and fetching the face images as successive images of a plurality of frames;

storing the fetched successive images of the plurality of frames as a backup image;

recognizing the state of pupils based on the image of a preset frame in the stored successive images of the plurality of frames and determining whether the

pupil state is suitable for printing/outputting of the face image;

storing and outputting the image of the preset frame with respect to one of a storage device such as a filing device and other storage medium when it is determined in said determining step that the pupil state is suitable for outputting of the face image;

causing said determining step to be effected again by use of an image of a frame next to the image of the preset frame in the stored successive images of the plurality of frames when it is determined in said determining step that the pupil state is not suitable for outputting of the face image;

selecting an image of a desired frame suitable for outputting of the face image from the stored successive images of the plurality of frames when the output image is not adequate; and

outputting the selected image.

37. A face image photographing apparatus comprising:

image fetching means for photographing at least face images of a to-be-photographed person and fetching the face images as successive images of a plurality of frames;

image storing means for storing the successive images of the plurality of frames fetched by said image fetching means as a backup image;

first outputting means for storing and outputting
the image of a preset frame in the successive images of
the plurality of frames stored in said image storing
means with respect to one of a storage device such as

5   a filing device and other storage medium;

image selecting means for selecting an image of
a desired frame suitable for outputting of the face
image from the successive images of the plurality of
frames stored in said image storing means when the

10   image output by said first outputting means is not
adequate; and

second outputting means for outputting the image
selected by said image selecting means.

38. A face image photographing apparatus

15   comprising:

image fetching means for photographing at least
face images of a to-be-photographed person and fetching
the face images as successive images of a plurality of
frames;

20   image storing means for storing the successive
images of the plurality of frames fetched by said image
fetching means as a backup image;

determining means for recognizing the state of
pupils based on the image of a preset frame in the

25   successive images of the plurality of frames stored in
said image storing means and determining whether the
pupil state is suitable for printing/outputting of the

face image;

first outputting means for outputting the image of the preset frame to one of a storage device such as a filing device and other storage medium when said determining means determines that the pupil state is suitable for outputting of the face image;

retry control means for causing said determining means to effect the determining process again by use of an image of a frame next to the image of the preset frame in the successive images of the plurality of frames stored in said image storing means when said determining means determines that the pupil state is not suitable for outputting of the face image;

image selecting means for selecting an image of a desired frame suitable for outputting of the face image from the successive images of the plurality of frames stored in said image storing means when the image output by said first outputting means is not adequate; and

second outputting means for outputting the image selected by said image selecting means.

39. A face image photographing apparatus comprising:

photographing means for photographing at least a face image of a to-be-photographed person;

indicating means for indicating a reference position (which is a glabella portion of the face) with

respect to the position of pupils based on the face
image photographed by said photographing means;

calculating means for calculating a cut-out range
of the face image photographed by said photographing
5   means based on the reference position indicated by said
indicating means; and

image outputting means for outputting a cut-out
image of the face image photographed by said
photographing means based on the cut-out range
10   calculated by said calculating means.

40. A face image photographing apparatus
comprising:

photographing means for photographing at least a
face image of a to-be-photographed person;

15   indicating means for indicating a reference
position with respect to the position of pupils based
on the face image photographed by said photographing
means;

calculating means for calculating an area
20   containing the pupils based on the reference position
indicated by said indicating means;

determining means for recognizing the pupil
state based on at least the face image of the to-be-
photographed person in the area containing the pupils
25   calculated by said calculating means; and

image outputting means for outputting the face
image photographed by said photographing means as

a photographing image when said determining means
determines that the pupils are normally opened.

41. A face image photographing apparatus
comprising:

5   photographing means for photographing at least
a face image of a to-be-photographed person;

indicating means for indicating a reference
position with respect to the position of pupils based
on the face image photographed by said photographing

10   means;

calculating means for calculating an area
containing the pupils based on the reference position
indicated by said indicating means;

determining means for recognizing the pupil

15   state based on at least the face image of the to-be-
photographed person in the area containing the pupils
calculated by said calculating means;

image outputting means for outputting the
face image photographed by said photographing means

20   as a photographing image when said determining
means determines that the pupils are normally
opened; and

retry control means for causing the face image
photographing process, the process for indicating the

25   reference position with respect to the pupil positions,
the process for calculating the pupil positions, and
the process for determining whether the pupils are

normally opened to be effected again when said
determining means determines that at lest one of
the pupils is not normally opened.

42. The face image photographing according to
claim 41, wherein said determining means determines
whether the number of pupil positions detected by said
detecting means is larger than a preset specified
value, compares shapes of peripheral portions of
the detected pupil positions with preset pupil
sample data if it is determined that the number of
detected pupil positions is larger than the specified
value, determines whether the degree of similarity
of one of the detected pupil positions which has
the highest degree of similarity is larger than
a preset threshold value, determines that the pupils
are normally opened if the highest degree of similarity
is larger than the preset threshold value, and
determines that at least one of the pupils it not
normally opened in one of a case wherein the highest
degree of similarity is not larger than the preset
threshold value and a case wherein the number of
detected pupil positions is detected to be not larger
than the specified value.

43. A face image photographing apparatus
comprising:

image fetching means for photographing at least
face images of a to-be-photographed person and fetching

the face images as successive images of a plurality of
frames;

display means for sequentially displaying the
successive images of the plurality of frames fetched by
said image fetching means;

image selecting means for selecting an image of
a desired frame suitable for outputting of the face
image from the successive images of the plurality of
frames displayed on said display means; and

output means for outputting an image of a frame
displayed on said display means immediately before
the image is selected by said image selecting means as
an image of a desired frame suitable for outputting of
the face image.